

Module-0 Fabrication and Assembly Summary

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November 14, 2022

PD Mechanical Design Meeting

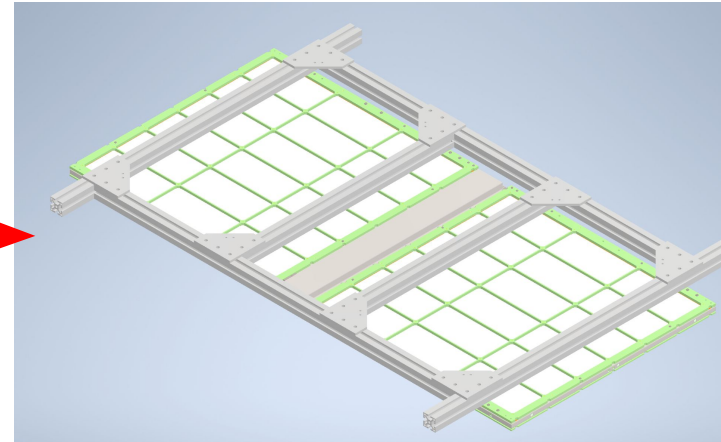
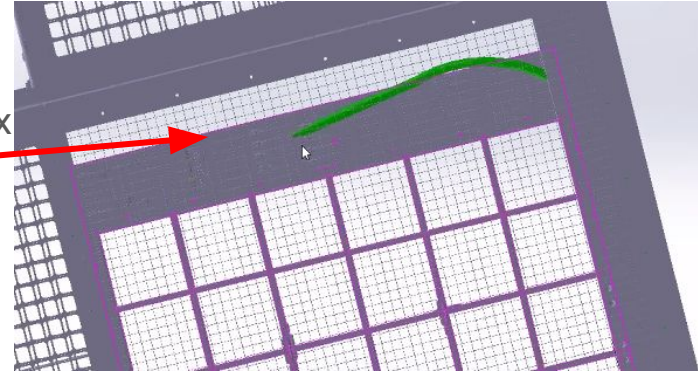
Module-0 Schedule from Vishnu (as of 11-7-2022)

- **December 12-19:** Two integrated design membrane-mount 97.5 X 202mm filter plate modules at CERN for upper membrane cryostat installation. Four integrated design cathode mount 97.5 X 202 filter plate modules at CERN for Cathode 1.
- **January 16:** Two integrated design cathode mount 97.5 X 202 filter plate modules at CERN for Cathode 2. Two integrated design cathode mount 150 X 150 filter plate modules at CERN for Cathode 2. Four extra filter frames for 97.5x202 if needed. Two integrated design membrane-mount 97.5 X 202mm filter plate modules at CERN for membrane cryostat installation.
- **March:** Four integrated membrane mount modules (dummies?)
- CSU machines 6 frame kits for Dec./Jan. delivery to CERN
- NIU assembles and ships 2 membrane mounts and 4 cathode for Dec./Jan. delivery to CERN
- Iowa machines 10 frame kits for Jan./Feb. delivery to CERN
- NIU assembles and ships 6 membrane and 4 cathode mounts for Jan./Feb. delivery to CERN

- Engineering team met several times last week
- Careful planning and tracking required to meet this tight schedule
- Focus on
 - remaining design questions
 - organizing/orders for first six modules
 - planning for next ten modules

Details -- design work in progress:

- Much discussion by engineering team last week
- Cathode enclosure box
 - the fiber bend radius makes it difficult to enter/enclose in box (see green)
 - Machining takes a long time so need quick decision/design
 - From current coldbox tests, v4 (“shoebox”) possibly more light-tight than v5 (“clamshell”)
 - discussion among engineering team -- in progress
- Membrane enclosure box -- need 2 for December
 - Doesn't need to be light-tight, just electrical shielding
 - Two modules are installed together, so double-box solution
 - Will assemble box for December
- Membrane modules installed in pairs
- Mesh support clamps
 - Slight design mods to make shorter for Module-0 design
 - Question of whether mesh is needed



Production of 6 modules for Dec/Jan, 10 for Jan/Feb

- Organization/orders for first 6 modules (Dec/Jan) -- based on Ryan's spreadsheet
 - Design modifications (previous slide) to be finalized in near future
 - Meetings last week organized who is doing what (CSU, NIU, UI, FNAL)
 - Material, COTS, component manufacture orders going out
 - All components will be shipped to NIU for assembly, then to CERN
- Planning for ten Jan/Feb modules
 - Assume designs will be finalized in the next two weeks
 - Looking into other possible methods, materials
 - Iowa confirming availability of university and local resources for machining and water-jetting
 - Confirming shipping boxes
 - Possibly further input from cold-box tests?
- **Summary: the team is working together to meet the schedule!**